APPENDIX 5-E

FORMAT FOR A QUARTERLY RELEASE RESPONSE REPORT *

Page

Cover Page

_____ A. Provide DOH UST facility and release ID Numbers

_____ B. Provide facility name and address. If available, provide latitude and longitude coordinates

_____ C. Date report prepared

_____ D. Name, address, and telephone number of person/company preparing report

Table of Contents

1. Executive Summary

_____ A. Brief summary/overview of the important results and findings of UST closure (if appropriate), initial response, initial abatement, field measurements, free product removal, and soil and ground-water investigation activities, and removal or remediation of grossly contaminated soil. Conclusions and recommendations for further (if any) work should also be presented. Identify which cleanup option, or combination of options, are planned for the site.

2. Introduction/Purpose

_____ A. Brief statement of purpose

_____ B. List all previous reports submitted to DOH, including all previously submitted progress reports

3. Background

A. Site Description

_____ · A brief description of the site location and surrounding area

_____ · The location of any populations that could be affected by the release

B. Vicinity map or sketch

_____ · North arrow

_____ · Streets

_____ · Surface water bodies

_____ · Water supply or injection wells

_____ C. A U.S.G.S. 7.5 minute topographic quadrangle map indicating the location of the site

Note: All maps of the facility area should follow conventional mapping scenarios and should be easily read and interpreted. If this is not possible on one map, multiple maps are encouraged. If several maps are presented, all maps shall be in the same scale to aid in map comparisons. If geological maps are submitted, they should adhere to all normal geologic mapping conventions.

D. Site Plan(s) drawn to scale showing details of the following:

_____ · The type and extent of onsite, ground surface cover (i.e. asphalt, concrete, soil, fill material, grass, etc.)

_____ · Locations of all products and waste fluid tanks (existing and removed), associated piping, sampling points (identify sample depths), and dispenser pumps

_____ · Adjacent streets, buildings and property lines

_____ · North arrow

_____ · Area of excavation, construction, or filling

_____ · Locations of any stockpiled soil

_____ · Locations of field measurements

_____ · Utility conduits

_____ · Surface water drainage courses

_____ · Sewerage

_____ · Water supply or injection wells

_____ · Catch basins, dry wells

_____ · Existing and proposed monitor well locations

_____ E. Provide boring logs, schematic well construction diagrams, and any engineering plans for recent subsurface investigations or remedial installations completed since the last monitoring report was submitted to the DOH

4. Continued Site Sampling for Release Characterization

A. Soil and Ground-Water Sampling

_____ · Cross-sectional diagram showing specific location and depth of site sampling

_____ · Describe site sampling procedures undertaken to collect and analyze all soil and water samples. Follow sampling guidance presented in Section 7 of this document

_____ · Describe or cite sample control procedures followed, including types of sample collection containers used and method of appropriate sample preservation (See Section 7 of this document)

B. Chain-of-Custody

_____ · Dates and times of sampling and receiving

_____ · Sample ID correlating to field ID and lab ID

_____ · Signatures of all personnel relinquishing and receiving sample

_____ · Preparation and analytical methods requested

C. Field Measurement

_____ · Description of field instrument(s) used

_____ · Calibration standards and frequency of calibration

_____ · Relative instrument response to various petroleum compounds based on calibration standard

_____ · Field measurement procedures (e.g. jar or baggie headspace,etc.)

_____ · Table of Field Measurement Results: Results of field measurements presented in a comprehensive table with sample locations keyed to site plan.

D. Laboratory Analytical Results

_____ · Follow recommended sample preparation and analytical methods presented in Section 7

_____ · Table of Analytical Results: Present analytical results in a comprehensive table with the sample ID, sample location (keyed to site plan) including sample depths, preparation and analysis methods, constituent concentration and method detection limits. All tabulated results should be expressed in parts per million (mg/kg or mg/L).

_____ · Formal analytical results should be appended to the report. Results must be reported on laboratory letterhead and include the following:

_____ - Date sampled, received (by all parties), extracted, analyzed, and reported

_____ - Condition of samples upon receipt by laboratory (including notations of sample preservation--or lack of--broken sample custody seals, etc.)

_____ - Methods of preparation (extraction) and analysis

_____ - Detection Limits

_____ - Concentration of analyte, preferably expressed by (mg/kg, mg/l) ppm, (ug/kg, ug/l) ppb

_____ - Quality Assurance and Quality Control (QA/QC) protocol should include:

_____ - Field and reagent blank

_____ - Matrix spike and matrix spike duplicates

_____ - Calibration check standard

_____ - Surrogate recoveries

_____ - Acceptable ranges

_____ - Signature of analytical testing personnel and the lab director/manager

_____ · Samples must be extracted and analyzed in accordance with recommended maximum holding times

5. Results of Continued Contaminated Soil Removal

_____ A. Field measurement procedures and results

_____ B. Volumes of soil removed

_____ C. Locations of stockpiled soil corresponding to site plan

_____ D. Procedures for managing stockpiled soil onsite

E. Procedures for managing stockpiled soil offsite

_____ · Copies of any notification of soil transport made to DOH

_____ · Procedures taken to properly transport soil and

_____ · Procedures for management at offsite location

6. Results of Continued Free Product Investigation and Removal

_____ A. Results of investigation to determine if free product exists and, if so, to identify the quantity present and determine its extent in the subsurface

_____ B. Methods and/or procedures employed to remove, separate, store, recycle, and/or dispose of free product including as appropriate:

_____ · Engineering plans, specifications, and sizing calculations for all equipment

_____ · A process flow diagram

_____ · A list of permits obtained

_____ · Name of recycler or disposal contractor used and frequency of pickup

C. Methods employed to treat and discharge any waste water produced including:

_____ · Type of treatment applied including engineering plans, specifications, and flow diagrams

_____ · Effluent quality expected after treatment

_____ · Method of discharge

_____ · Location of treated discharge and

_____ · Permits obtained for discharge

_____ D. Schedule for future monitoring

7. System Operations

_____ A. Provide summary tables of pertinent operational data, such as total time operating, total down time, average flow rates and pressures, average pump drawdowns, average operating temperatures, quantities of nutrients or conditioners added, frequency of irrigation and cultivation, etc. as may be appropriate to the remedial technology.

_____ B. Provide summary tables of field screening and/or analytical results of influent and effluent sampling for all treatment systems

_____ C. Provide summary tables and/or time series plots of total quantity of contaminated media removed (soil, soil vapor, ground water, free product), total quantity of contaminants removed, and total quantity of contaminants disposed of or recycled. Include any manifests or bills of lading.

8. Well Gauging

_____ A. Provide summary tables of measured monthly water table elevations and free product thicknesses or subsurface air pressures for each ground-water or soil vapor monitoring and recovery well. All water-level measurements should be taken from surveyed measuring points. Identify the equipment used to collect the data.

_____ B. Provide a potentiometric contour map and a free product thickness map for each monthly data set. Indicate the direction ground-water flow. Indicate the zone of capture for any soil vapor extraction, ground-water recovery, and/or free product removal systems.

_____ C. Provide an estimate of the amount of free product remaining in the subsurface. Include the method of estimation.

9. Contaminant Conditions

_____ A. Provide summary tables of the field screening and/or analytical results for all quarterly soil and water sampling. All samples should be analyzed for all appropriate indicator parameters using EPA-approved methods. Water samples do not need to be collected from monitoring wells containing free product. Identify the methods and equipment used to purge and sample each well.

_____ B. Provide isocontour maps depicting the magnitude and extent of soil and water contamination by media and phase including:

_____ · The known or suspected extent of soil contamination

_____ · The known or suspected extent of free product

_____ · The known or suspected extent of dissolved ground-water contamination

_____ C. Provide copies of all laboratory reports and chain-of-custody documentation

10. Recommendations

_____ A. Conclusions and recommendations for additional work and report submittals as necessary

_____ B. Anticipated dates for future field activities

_____ C. Anticipated dates for future report submittals, especially those reports that are to be prepared in accordance with available cleanup options

____ D. If No Further Action is proposed for the site, complete and include with the submitted Quarterly Release Response Report the *Hawaii DOH UST Checklist for Final Release Response Report* found in Appendix 5-K.

* **During the quarters where no new environmental activity (data collection of remediation) is reported, sections 3, 4, 5, 6, 7, 8, and 9 are superfluous and can be omitted. The key sections are 1, 2, and 10.**